Connecticut Department of Environmental Protection

P2 Works, Update 2002!

Six years ago, the Department of Environmental Protection (DEP) published the *Pollution Prevention Plan for Connecticut,* a document designed to steer the Department in its efforts to prevent pollution statewide. Preventing pollution requires a shift in how businesses operate, how consumers go about their daily activities, and how institutions are run. The Plan emphasized education and outreach to create an awareness of pollution prevention (P2) opportunities for all sectors of the community -- consumers, businesses, and institutions -- to form partnerships and invite voluntary participation. In 1999, a review of the Department's progress was undertaken showing that many of the Plan's objectives were successfully being accomplished.

Since the Plan was written, new challenges have come into focus, like addressing climate change, combating sprawl, and promoting the use of green building techniques and renewable energy. The Department continues to employ prevention as a way to make Connecticut's environment better and safer as we deal with these challenges.

P2 Works, Update 2002! is a sample of activities, individual projects, and case studies that we've been working on. So, please, read on!

Spreading the Word

The DEP uses a variety of ways to get the word out about pollution prevention - from partnering with businesses to reaching out to Conn. residents through the Internet. We're making progress in getting P2 practices incorporated at home and in the workplace.

- Ever wonder what a Green Building is?

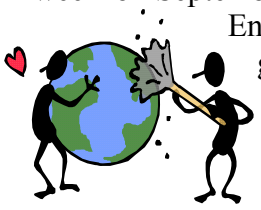
Well, it doesn't have anything to do with what color paint is used! A Green Building takes the environment and use of natural resources into consideration in its design. Typically, green buildings improve energy efficiency, conserve water, improve indoor air quality, and reduce pollution. DEP is part of the newly formed CT Green Building Council (CTGBC), which aims to raise the level of knowledge about green buildings in the state. While encouraging the use of the national Leadership in Energy and Environmental Design (LEED) standards, the CTGBC has held training, events and tours to promote a shift in design towards green.

- How can small manufacturers in the state learn about preventing pollution?

Through DEP's partnership with the Connecticut State Technology Extension Program (ConnSTEP), over 50 small manufacturers received on-site technical assistance since 1997. ConnSTEP works with these businesses to help improve their competitiveness by incorporating P2 and source reduction into their manufacturing processes. ConnSTEP also teaches clients about Environmental Management Systems and can help with the ISO 14000 certification process.

- Taken part in any P2 Week celebrations lately?

While not as well known as Earth Day, it is a growing national event celebrated the third week of September and has a different theme each year, such as "Shop for a Better Environment." It is a time when government, businesses, environmental groups and citizens can join forces to bring awareness to pollution prevention issues. The DEP has celebrated P2 week since 1997 by holding events such as an environmental fair in Bushnell Park and organizing tours of "green buildings" and a home that uses geothermal energy for heating and cooling. A variety of events will be taking place for P2 week.



- Come one, come all…

To DEP's monthly P2 Lecture Series! One-hour presentations given at DEP in Hartford on a variety of pollution prevention topics. Since 1997, over fifty lectures have been held on topics such as smart growth and land use planning, photovoltaics, and preventing pollution at the Mohegan Sun Casino. Lectures are free and open to the public.

- Can't make it to a lecture, but want to stay informed?

P2 View is our free quarterly newsletter, published since Fall, 2000. This publication has a readership of over 1100 businesses, local governments, community groups, non-profits, and residents. Feature articles cover a wide range of topics such as a company that has significantly reduced the packaging of its product to using integrated pest management for a healthy lawn. There are also updates on CT P2 activities and a calendar of events. This publication can also be viewed from the DEP P2 website.

- Visit www.dep.state.ct.us/wst/p2, our P2 website, for one-stop browsing.

There's an introduction to pollution prevention as well as more detailed information geared towards business and industry, state and local governments, schools and institutions and individuals and families. Look at the list of publications (fact sheets, case studies, brochures) and other materials available for loan (displays, videos).

- Have we met?

We often take the P2 show on the road. We travel to businesses, schools and events - just about anywhere to educate the public about P2. You may have seen us at the CT Home Show in Hartford displaying "A Green Home is a Healthy Home", or at work providing information about mercury at the Hartford Hospital Health and Safety Fair, or even on TV talking about alternatives to hazardous cleaning products.

- Making a Pit Stop

There are over 5,200 vehicle service facilities in Connecticut (auto-body and repair shops, gas stations, fleets, vocational-technical schools, junkyards). DEP's **Pit Stops** program is designed to provide outreach to these facilities so they are aware of environmental requirements and P2 opportunities. Pit Stops fact sheets cover topics such as antifreeze, vehicle painting, and shop wastewater, and are scheduled for an update next year to reflect regulation changes and new topics like mercury switch removal. Presentations based on Pit Stops topics are held for organizations representing the automotive services industry including the Connecticut Auto Recyclers Association, Connecticut Automotive Trades Association, American Public Works Association, and CT Towing and Recovery Professionals of Connecticut. DEP is developing an environmental compliance checklist and training that will be used during DMV inspections. DEP will track checklist information in a database, and compliance assistance will be provided. An accompanying brochure on Best Management Practices (BMPs) and P2 tips is also being developed for facility managers.

Targeting Mercury

Most people know that mercury is the silver colored liquid in fever thermometers, but what they don't realize is that it is a toxic metal that can damage our central nervous system. Fish from Connecticut waters can also contain high levels of mercury, so be sure to check the Health Department's **fish consumption information.**

Over the past several years, there has been plenty of scientific evidence pointing to mercury as a toxic of concern. The DEP participated in a regional effort to develop a Mercury Action Plan. Next, the State Legislature directed the DEP to report on ways to reduce the amount of mercury-containing wastes from household, commercial and industrial sources. Most recently, a new law was passed in Connecticut that will further reduce mercury in the state.

The New Law = Less Mercury
Public Act 02-90, An Act Concerning Mercury Education and Reduction, prohibits the future sale of novelty items with mercury and mercury fever thermometers except by prescription, requires products with mercury to be labeled, phases out mercury-added products over time, requires manufacturers to notify DEP on mercury in products, creates an interstate clearinghouse to identify mercury-containing products, and calls for a comprehensive public education and outreach program.

Going After Mercury Statewide
In September 2000, DEP announced a goal of collecting 2001 pounds of mercury by September 2001, and a statewide education campaign and mercury collection was underway. A large replica of a thermometer was put up at the DEP office building to publicly track the accumulating quantities of mercury. DEP surpassed its goal and collected 2020 pounds of mercury. Here's how we reached our goal:

- A Change in the Temperature: The yearlong campaign was kicked off during National Pollution Prevention Week 2000 in Hartford at the DEP's two mercury thermometer exchanges. During these exchanges, DEP collected over 1200 mercury fever thermometers and distributed new alkaline battery operated digital thermometers as replacements. Thermometer exchanges also occurred in conjunction with Household Hazardous Waste collection days around the state and were hosted by some hospitals and private corporations. To date, over 70,000 thermometers have been exchanged bringing in over 90 pounds of mercury.

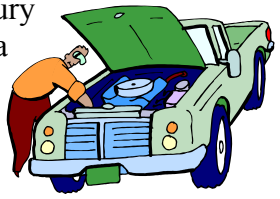
- School's Out for Mercury: In recent years, there have been a number of incidents at high schools in Connecticut involving mercury spills. The spills have resulted in exposure to children, large clean up costs, lawsuits, and arrests. In some incidents, students brought the mercury into the school, in other cases the mercury was from the school chemistry lab. Awareness grew and schools became interested in cleaning out

chemistry labs of unwanted hazardous chemicals. The DEP coordinated a pilot program with six schools to collect mercury and other hazardous chemicals beginning in the Fall 2000. City schools and other distressed municipalities were contacted first based on economic need. Participants agreed not to purchase any more of these chemicals and to attend training on managing hazardous chemicals. Clean-outs were conducted between September 2000 and January 2001. Over 75 pounds of mercury were removed from the school science labs, as well as other hazardous chemicals needing safe management.

Schools other than those involved in the pilot also conducted clean-outs on their own. Between February 2000 and February 2001, twenty schools, including the pilot schools reported removing a total of 283 pounds of mercury in addition to other hazardous chemicals. DEP also conducted a thorough sweep of State vocational schools. This clean-out program is continuing through the use of the Mercury Reduction Supplemental Environmental Project account. Currently, 39 additional schools are waiting to be cleaned out before the end of 2002.

- Something to Smile About: The DEP partnered with the National Wildlife Federation and the CT State Dental Association (CSDA) on "The Environmentally Responsible Dental Office: A Guide to Proper Waste Management in Connecticut Dental Offices". This guide was distributed to all CT dentists and a bulk mercury collection for dentists was funded. DEP coordinated the collection of dental mercury from around the state, resulting in the collection of 412 pounds of bulk mercury. Next steps with the dental community will probably focus on the use of amalgam separators.

- Switching Over: Several auto manufacturers, mostly American makes, use switches that contain mercury to trigger the interior trunk light when the trunk is opened. DEP provided training on removal and proper disposal of mercury switches, and replacing switches with non-mercury ones at a used car dealer, the State of Connecticut fleet operations, and the City of Hartford Fleet operations. Two automobile recyclers were also trained to remove switches before crushing cars for recycling. DEP will arrange for free disposal of the mercury for these participants.



- Spreading the Word: A tabletop exhibit titled "Exposing Mercury" was developed and is available for use at meetings and civic events. A poster and brochure (brochure produced in English and Spanish) have also been created and distributed to schools and public libraries. These materials are available free of charge from the Pollution Prevention Office.

Connecticut Businesses Prove That P2 Pays!

Many Connecticut companies are interested in reducing waste and reducing pollution, but don't know where to start. Looking at what others have done and learning from peers is a great way to start. DEP has worked with companies who've changed a process or tried a less polluting way of getting the job done. Many times they also end up saving money. A set of case studies is available free or downloadable from the P2 Website. DEP continues to look for companies and technologies to showcase. Some of our most recent topics include:

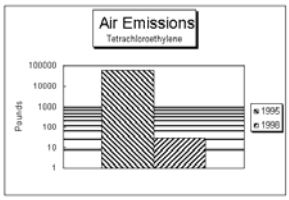
Dip Coating at OKAY Industries

In a period of approximately one-year OKAY Industries dramatically reduced their air emissions from a highly specialized coating line by switching from a spraying to a dipping process. As a direct result, they doubled the coating line throughput and improved quality while cutting costs in half and decreasing worker exposures. The switch resulted in a decrease in the Volatile Organic Compounds (VOCs) content from 6.6 to 2.0 pounds per gallon. They have also eliminated the generation of all hazardous wastes from this coating operation.

Cooling Towers - Non-Chemical Water Conditioning at Schick

The Schick Company of Milford has systematically eliminated the use of conditioning chemicals in its cooling tower water by installing commercially available electrically powered water conditioning units. The company now operates all its cooling towers without the use of conditioning chemicals. This has dramatically reduced costs and regulatory burdens, and resulted in a cleaner environment, improved profitability and a healthier workplace.

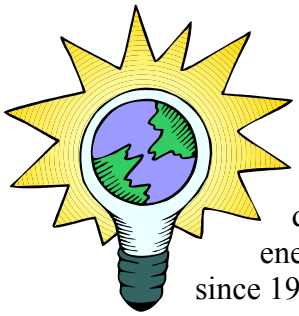
Parts Degreasing - Connecticut Spring and Stamping Corporation



The Connecticut Spring and Stamping Corporation of Farmington reduced its purchase of Tetrachloroethylene (perc) by over 98%, perc hazardous waste generation by over 95% and perc air emissions by over 99%. The company changed its hazardous waste generator status from Large Quantity Generator to Small Quantity Generator. These changes were made as a result of both company initiative and DEP regulatory involvement. This is a win-win situation resulting in benefits to the state and to the company.

VOC Free Paint for Sikorsky Helicopters

On December 13, 2000, Sikorsky delivered a new helicopter to the Navy, which was coated with an innovative high performance paint formulated without any volatile organic compounds or hazardous air pollutants. This new paint has passed performance trials under actual military operating conditions and has become the new standard helicopter paint. The previous paint contained four chemicals targeted by the US EPA for reduction or elimination. The new paint is the result of a collaborative effort between Sikorsky, the paint supplier, and the Navy.



It's NICE3 For Some Connecticut Industries

What's NICE3? It stands for National Industrial Competitiveness through Energy, Environment, & Economics, a US DOE program that provides financial support to first-time commercial demonstrations of innovative manufacturing processes that save energy, money, and prevent pollution. DEP has participated in program since 1995 and received $2 million for Connecticut industries.

Connecticut's most recent NICE3 award provided $525,000 from US DOE, to demonstrate a non-vacuum electron beam welding technology developed by Brookhaven National Laboratory. Acceleron Electron Beam, LLC will demonstrate this technology at their East Granby plant. The elimination of the vacuum chamber will result in:

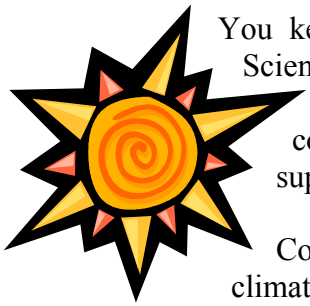
- direct energy savings of 80 – 90% and significant reduction in associated pollutants;
- allows electron beam welding to become mobile and possible on pieces of unlimited size in unrestricted industrial locations;
- benefits to the automotive, aerospace, shipbuilding and other energy intensive critical metalworking industries once commercialized.

Two other current Connecticut NICE^3 projects promise environmental and cost savings for other industries:

- Advanced Fuel Research (AFR) in East Hartford was awarded a $305,000 DOE grant to demonstrate a new, portable, low-cost multi-gas analyzer that performs continuous emissions monitoring and greatly improves the combustion efficiency of industrial boilers and advanced gas turbines. This technology improves continuous emissions monitoring, while providing an on-line "combustion tuning" tool for on-site power generation. It dramatically reduces fuel requirements and air pollution, and when compared to conventional systems, lowers energy costs by 70%.

- Green Technology Group (GTG) of Sharon was awarded $475,000 in 2000 to demonstrate a unique system for regenerating spent hydrochloric acid from steel pickling. Conventional pickling technology generates 1.5 billion gallons of spent pickle liquor nationwide each year, requiring handling, treatment, and disposal. The GTG process uses sulfuric acid to restore hydrochloric acid for reuse and enables closed-loop pickling, eliminating the need to transport, treat, and dispose of spent liquor. Energy savings of 95%, cost savings of 52%, and a 91% reduction in CO2 emissions, compared to existing technology is expected. Demonstrations of GTG's technology are underway at U.S. Steel Corporation's Irvin Works Sheet Mill in Pittsburgh, with very promising results. Full-scale adoption is projected to save $1.4 million in plant costs and $3.3 million in raw materials annually.

It Makes Energy Sen$e for Communities



You keep hearing about climate change – so what's the big deal? Scientific reports indicate a clear link between human activities and the warming of the earth. If this warming trend continues, it could result in coastal flooding, changes in food and water supplies, increased air pollution, and related health problems.

Connecticut is taking action to reduce emissions that contribute to climate change (i.e., carbon dioxide, sulfur oxides, nitrogen oxides, and methane). Although climate change requires a global solution, action and education at the local level are critical. DEP has formed a partnership with other government agencies and Non-Governmental Organizations and begun to work together to assist local governments to reduce greenhouse gas emissions (GHG). The overall mission is to improve the economy, quality of life, and the environment through the design and implementation of a sustainable energy program involving public education and local emissions reductions

New Haven and Willimantic are Energy Sen$e Model Communities. Both municipalities have taken an important first step - passing a resolution that commits them to reduce GHG emissions and the effects of climate change. New Haven has also completed a GHG inventory and Willimantic started work on one in June 2002. Recommendation on ways to reduce GHG emissions include energy efficiency measures coupled with conservation in city buildings, and from transportation related actions. Buying renewable energy ("green power") instead of power generated from fossil fuels is another option.

New Haven has an energy manager assessing energy usage in several buildings and will be installing radio-controlled energy management devices to control each buildings electrical use. The City plans to substantially cut energy over the next five years. Several City offices are contributing to the success of this initiative. The DEP and NGO group has also begun to work with the small business community, non-profit housing sector, and colleges in the area.

Willimantic is also very committed to reducing greenhouse gas emissions. The DEP partnership group will continue to work with the town, the Chamber of Commerce, the Institute for Sustainable Energy at Eastern CT State University, and other local organizations to promote energy efficiency and awareness in the community (e.g., advice on design of proposed community center, energy awareness exhibits at monthly street fair, grant opportunities to bring energy projects to the town).

Connecticut's Clean Marinas Lead the Way

Connecticut boasts over 250 miles of shoreline in addition to dozens of lakes and rivers located throughout the state. It's no wonder boating, water skiing, swimming, and fishing are prime recreational activities for many of us. However, these fun activities can also cause pollution to Connecticut's waters. Many routine tasks at marinas and boatyards, for example, like changing oil or painting and pressure-washing boat hulls, may impact the health of surrounding waters.

Steps are being taken to prevent pollution to Long Island Sound and other water bodies. The DEP is working with the recreational boating industry to develop a Clean Marina Program. The Clean Marina Program will educate marina operators across the state about simple ways to reduce their facilities' impacts on Connecticut's waters, and to encourage better management of nonpoint sources of pollution. The program will also educate boaters to follow similar guidelines. To become a Certified Clean Marina, a marina must go beyond what is required by law to reduce nonpoint source pollution, and improve the environmental quality of its facility and the adjacent waters. DEP will begin certifying marinas for the 2003 boating season. If you see a flag with the Clean Marina logo flying at a marina, you will know that the facility has earned Clean Marina certification.

The Clean Boater component of the program is aimed at boat owners. It teaches simple and inexpensive ways to protect our waters from environmental impacts such as discharges from oil and fuel, sewage, solid waste and marine debris from vessel operations and maintenance. Two publications, "*Clean Boating Tips*", a weatherproof card and a guidebook titled "*Clean Boating in Connecticut - Action Guide for Boaters*," will be available soon from DEP.

Clean boating tips are easy, common sense actions, such as:

- Use a drop cloth to collect all paint chips, dust and residue;
- Avoid "topping off" your fuel tank; leave 10% of the tank empty for fuel to expand.
- Empty holding tanks at shore-side pump-out stations or use pump-out boat services.
- Do not throw fish waste into marina waters.

DEP's program to promote Boat Pump-out facilities, www.dep.state.ct.us/olisp/cva/cva.htm**,** has been underway for several years now. There are close to 80 pump-out stations throughout the state.

And, if you're in the market for a new marine engine, consider buying one of the new low-pollution outboard marine engines that are now replacing the conventional 2 stroke engines. These clean engines come as four-stroke or direct fuel injection two-stroke engines and benefit the environment by burning 25 – 35% less gasoline and emitting 70 to 85% percent less pollution.

Chlorine Free…the way to be!

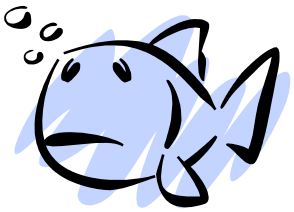
Have any bleach in your laundry room or scouring powder under the sink? Well, both of these can contain chlorine. Chlorine is also used to sanitize pools, disinfect drinking water, and treat sewage. In fact, 70% of the state's sewage treatment plants use large amounts of chlorine daily. The chlorine used in this application is a much higher concentration than that found in household cleaning products. Sure, chlorine kills bacteria, but it can also be corrosive, toxic to fish, and chlorine gas can be a serious respiratory hazard to people.

Many towns in Connecticut still use a significant amount of chlorine to disinfect sewage at their Publicly Owned Treatment Plants (POTWs). About 43% of Connecticut's sewage treatment plants still use the older style manually-controlled, chlorine-dosing systems. This system presents a safety hazard to workers, is inefficient, and usually results in adding more chlorine than is needed. DEP has been encouraging them to switch to a less toxic alternative.

Manual systems can be upgraded to either an automated system of adding chlorine - which insures that only the required minimum amount of chlorine needed to perform its disinfection job is added, or ultra-violet light (UV) disinfection – which is totally chlorine free.

More and more POTWs are switching to UV disinfection, provided they can justify the cost. In 1998, just 24 treatment plants in CT were using UV, but by August 2002 the number rose to 32 plants -- or about 30% of all of Connecticut's sewage treatment plants had installed UV or were under construction. There are also 18 subsurface sewage treatment systems that utilize UV disinfection. The changes to automated or UV systems came about for a number of reasons. Some of the older plants were due for an upgrade and installed more modern systems; others were unable to meet new, more restrictive permit limits set by DEP. These limits prohibit discharging water to small streams unless the chlorine dilution is at a level that will not impact sensitive aquatic life.

Currently, over 1603 pounds of chlorine per day is being eliminated, and that's good news for us all! Not only does a UV system eliminate chlorine and reduce pollution, but it is much safer for the treatment plant workers.



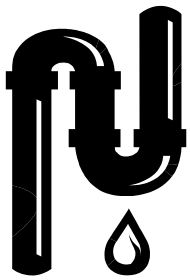
Water Companies Asked To Reduce Zinc

When the DEP took a look at monitoring data, it became clear that too much zinc was being discharged from some sewage treatment plants (POTWs). Contrary to common belief, the main source was not from industry, but rather from zinc compounds used by water supply companies. Zinc is often added to drinking water to control corrosion of pipes. While it is not harmful to consumers at these levels, it is highly toxic to fish and other aquatic organisms.

Water utilities in towns that had high levels of zinc from their sewage treatment plants were asked to eliminate or cut back on zinc. Water utilities serving 8 Connecticut towns responded and have reduced or are in the process of reducing zinc so that the local sewage treatment plant can meet water quality effluent limits for zinc. A less toxic alternative is a poly-phosphate product. The Connecticut Water Company has taken this one step further. They are also reducing zinc levels in Chester and Thomaston, two towns whose zinc levels were not of concern to DEP, and will closely track whether there is any impact on drinking water due to pipe corrosion. The total amount of zinc reduced from the eight towns is approximately 3,000 pounds per year.

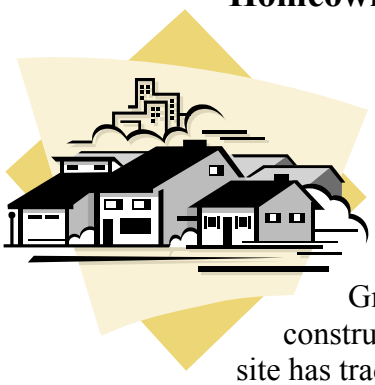
These towns and their respective water utilities are:

- Wallingford and the Town of Wallingford Water Department
- Bristol and the City of Bristol Water Department
- Stafford Springs and the Connecticut Water Company
- Naugatuck and the Connecticut Water Company
- Chester and the Connecticut Water Company
- Thomaston and the Connecticut Water Company
- Manchester and the Manchester Water Department
- Waterbury and the Waterbury Water Department



A case study focusing on the Wallingford Water Department's zinc reductions, entitled *Water Utility Eliminates Use of Zinc Compounds for Corrosion Control* is available from DEP's Bureau of Water Management.

Homeowners and Housing Developers Use Water Gardens and Other Design Elements to Reduce Pollution



The Jordan Cove Urban Watershed Project is located in Waterford, CT. The project measures differences in runoff quantity and quality from traditional and environmentally sensitive residential developments. The 18-acre Glen Brook Green residential development serves as the test case; it is being constructed and monitored to make this comparison. One section of the site has traditional, half-acre building lots with curbs, storm drains, and wide asphalt streets, while the other section uses a cluster design of single-family houses with zero lot lines, grassed drainage swales, and narrow, pervious streets.

Stormwater runoff from the traditional section is collected by curbs and catch basins, then piped through a stormwater treatment system before making its way to Jordan Cove, and ultimately the Long Island Sound. The environmentally sensitive section uses "best management practices" or "BMPs", such as:

- rain gardens - these shallow depressions are designed to collect and treat runoff from the roof and yard. Each lot has a rain garden. Another rain garden is located in the middle of the cul-de-sac, designed to collect and filter water from the road.

- grass swales - located on the sides of the roadway, these gassy channels are intended to slow runoff and allow water to infiltrate into the ground.

- shared permeable driveways - to reduce the amount of paved surfaces. Driveways are constructed of different materials to test how much runoff and pollution they create.

- low-mow / no-mow zones - to create green buffers that encourage the infiltration of stormwater.

The BMP neighborhood is expected to generate less stormwater runoff and pollution.

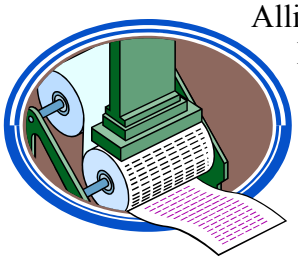
Monitoring will be conducted before, during and after construction for approximately seven years. Sampling completed during construction of the traditional design has shown a significant increase in flow and volume. The Connecticut DEP, UConn Cooperative Extension System, US EPA, and other project partners will use the results to educate town officials around the state on environmentally sensitive development practices and BMPs that can be applied to future residential development. Many of the BMPs are also appropriate for commercial and industrial development as well.

The Jordan Cove project is a featured case study on UConn's College of Agriculture and Natural Resources web site, at http://www.canr.uconn.edu/jordancove/.

There's More Than One Way To Settle A Case

Taking care of the environment and complying with Connecticut's laws and regulations are everybody's responsibility. However, sometimes companies, individuals, or institutions fall short, and DEP must take enforcement actions. In settling an environmental enforcement case, the violator not only needs to correct any wrongdoing and comply with all laws and regulations, but may also be fined. In certain cases, the violator can take part in a project that benefits the environment as part of the settlement and reduce the amount of the monetary fine. These projects are known as Supplemental Environmental Projects, or SEPs, and DEP's policy on SEPs is clearly laid out. Visit www.dep.state.ct.us/enf/policies/sep.pdf for additional information. Many SEPs focus on preventing pollution, and the policy includes projects that protect natural resources through conservation.

The Spencer Turbine Company (Spencer) in Windsor, CT, recently agreed to a SEP as part of a settlement for an enforcement action resulting from hazardous waste violations. Spencer's SEP involved energy conservation. Spencer contracted with Connecticut Light & Power (CL&P) to conduct an energy audit of their facility. An independent registered engineer then reviewed the analysis to ensure the integrity of the project. The audit generated four energy conservation scenarios. Spencer chose to implement the project that had the greatest environmental impact -- an Energy Management System (EMS) for the heating, ventilation, and air conditioning system. The EMS will control temperature and occupancy times, and manage demand, resulting in a reduction of 737,568 kilowatts per year. While Spencer will see reduced electricity costs, the reduction in energy consumption results in resource conservation and reduced pollution from electric generation benefiting all citizens of Connecticut.



Allied Printing Services, Inc. (Allied), a lithographic printer in Manchester, CT, also negotiated a SEP as part of an enforcement settlement. Allied must handle the waste developer and rinse water in the photo-processing according to appropriate regulations, but will also go beyond compliance. Their SEP focuses on reducing hazardous and regulated waste. Allied will purchase the necessary equipment to completely change their process – switching from the conventional pre-press method to a digital pre-press process. This change will result in virtually eliminating the photographic imaging chemicals and photographic film used in conventional pre-press film imposition (the main environmental concern here is the silver-based chemicals that end up in the fixer waste stream, which now will be reduced by 95%). Records show that Allied's photographic wastes amounted to 25,645 pounds of hazardous waste and 17,245 pounds of Connecticut regulated waste in 2001. A 95% reduction amounts to 12 tons and 8 tons per year, respectively.

Hot off the Press

The last time you flipped through a book, magazine, or catalog, you probably didn't think about how the item was printed. Well, there are lots of environmental issues associated with the printing process. Printing basically involves four elements - paper, water, ink and chemicals, generating pollution in the process. However, over the past few years, the printing industry has made some significant advances that have had a positive environmental impact.

The CT DEP produces a number of new publications each year and is continuously looking to find papers, inks and printing processes that tread as lightly as possible on the earth's resources. DEP strives to:

- Use recycled papers with the largest percentage of post-consumer waste content
- Specify vegetable inks
- Specify Aqueous coating or vegetable-based varnishes
- Minimize or eliminate the use of foils, plastics, and special metallic inks
- Use a print-on-demand digital machine if the print run is limited, when available.

Examples of recent DEP's printing projects include:

Fisheries Guide to Lakes and Ponds of Connecticut.

- Paper used - Scheufelin Phono-Star 50% recycled, 20% post consumer waste, and 50% totally chlorine free paper (presently, the only one of its kind in the world).
- Vegetable inks and aqueous coatings used.

By using high post-consumer waste recycled paper, this publication saved approximately 71 trees!

Pathways Through Connecticut: A Transportation Guide to Multi-Use Trails.

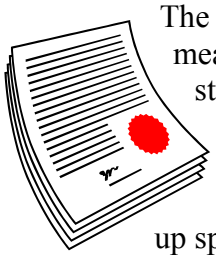
- Paper used - New Leaf Symphony Gloss 50% recycled, 30% post consumer waste. Highest percentage of recycled content available for coated gloss stocks in the world.
- Vegetable inks and aqueous coatings used.

The use of environmentally preferred coating and inks in these two publications have resulted in reduced volatile organic compounds (VOC's) and industrial waste.

Any Rain in the Forecast?

Remember the last rainy day we had? Well, when it rains, or snows for that matter, the precipitation often ends up as polluted stormwater runoff. This happens when rain water or melting snow washes over parking lots, uncovered materials and dumpsters, metal roofing, essentially everything in its path, and carries various pollutants into rivers, streams, Long Island Sound, and our groundwater.

Ten years ago, DEP began a program to reduce the amount of pollution picked up by stormwater. A General Permit for stormwater discharges from construction, commercial, and industrial activities was put in place and is in full effect today. Over 1200 industrial sites are covered, including heavy industry as well as landfills, scrap yards, recycling centers, waste transfer stations, big box stores, housing developments, and municipal and state public works garages. These sites must all register with DEP, develop and implement a Stormwater Pollution Prevention Plan, and do scheduled monitoring. In addition to the industrial sites, there are 670 construction sites and 211 commercial sites in Connecticut that fall under the General Permit for Stormwater Discharge.



The Pollution Prevention Plans are put together by the facility and list detailed measures that will be taken to minimize contact of pollutants with stormwater. Some of the actions that can be taken include storing materials (dirty rags, pallets, drums) in containers indoors, keeping salt piles and dumpsters covered, washing equipment or vehicles and changing fluids indoors where floor drains send water to an oil/water separator, cleaning up spills immediately with an absorbent, and replacing galvanized roofing and fencing with a non-metal product. Every year DEP visits numerous sites to make sure that Stormwater Pollution Prevention Plans are being put into action.

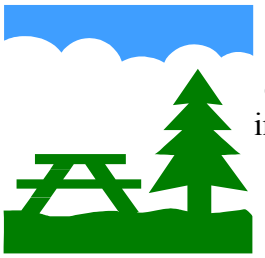
Connecticut is one of only a few states that requires monitoring to determine the quality of runoff and to track improvements over time. In 1996, 27% of the samples collected met all permit criteria, and improvements were seen each year through 2000. From 2000 to 2001, however, the amount of pollutants found in the average stormwater sample increased and the percent of samples meeting all permit criteria decreased slightly (in 2001, 41% of samples met all criteria). This could be due to the drought Connecticut has been experiencing. Extended dry periods may allow pollutants to build up on facility surfaces. We hope that each year the percentage of samples meeting all the permit criteria increases and the amount of pollutants being discharged will decrease.

DEP is getting the word out on reducing pollution in stormwater runoff by talking to industry trade groups at meetings and other events. Unfortunately, some companies still fail to follow the law. Last year, DEP won two major cases against companies that did not monitor stormwater for multiple years. One company was assessed a fine of $170,000 for one site with numerous stormwater violations and another company with multiple sites that failed to comply with the stormwater permit was penalized $313,000.

By the end of 2002, the stormwater permit program will expand significantly to include most municipalities and many more construction sites. This expansion of the stormwater

program is known as Phase II. Under the Phase II stormwater program, any municipality that contains Urbanized Areas will be covered by a new general permit for municipal separate storm sewer systems (MS4). This program will also cover state and federal facilities such as colleges, prisons, DOT and National Guard facilities that operate their own separate storm sewer systems and fall within Urbanized Areas. Urbanized Areas are defined by the Census Bureau for each decennial census and published on maps. Approximately 125 towns in Connecticut contain Urbanized Areas. The MS4 general permit will require the town or facility to develop a Stormwater Management Plan that addresses six minimum measures. These measures are: public education and outreach; public participation; illicit discharge detection and elimination; construction stormwater management; post-construction stormwater management; and pollution prevention and good housekeeping measures. Best management practices must be implemented or each minimum measure. In addition to the MS4 general permit, smaller construction sites of one to five acres will fall under the jurisdiction of the existing construction general permit, lowering the current five-acre threshold.

I Was Walking Through The Park One Day…



Take a stroll on the boardwalk at Hammonasset Beach State Park and you'll be surprised to learn that it's not wood you're walking on. The old wooden deck was recently replaced and Trex® was used instead. For more information visit: www.trex.com/univeral/inthenews/boardwalk.asp. Trex decking is environmentally responsible, made with approximately half recycled plastic and half-waste wood from woodworking operations. (The company recycles grocery bags and pallet wrap from local Stop & Shop stores from New Haven to Massachusetts.) *Trex* not only saves trees and closes the recycling loop, but also eliminates the need for stains, sealants, and other types of weatherproofing.

There are other recent changes at the park that benefit the environment. For example, the pick-up truck driving around with supplies and equipment isn't emitting air pollutants that contribute to ground level ozone. It is one of six fully electric vehicles in the State's parks. And that's not all --- Hammonasset is also getting a new pavilion, which will have composting toilets along with other "green" architectural elements.

Dinosaur State Park will soon become the showcase for clean, efficient, on-site energy generation. By 2003, a 25kw solid oxide fuel cell will supply a portion of the Visitors' Center energy needs. The fuel cell is projected to reduce air emissions by more than 90%, compared to conventional energy sources. An interpretive display explaining how the fuel cell works will also be created at the Visitors' Center. A new classroom wing is planned, which may be built to the environmental building standard known as LEED (Leadership in Energy & Environmental Design) if financially viable.
Hammonasset and Dinosaur are just two examples of the many efforts to reduce pollution and conserve resources that are being considered in all new building projects and renovation work taking place in state parks and maintenance facilities. New technology

such as spring-loaded lavatory faucets to reduce water consumption, composting toilets or automatic flushometers are replacing pit and conventional systems in some locations; electric vehicles have been introduced to replace conventional fossil fuel utility vehicles; and a computerized camp reservation system has replaced the old paper system and saved reams of paper. Recycling and the use of environmentally preferable cleaning products have become the norm in all facilities.

Composting toilets can be found at Hopeville Pond, Mashamoquet, Pachaug, Chatfield, Cockaponset, Mansfield Hollow, Bluff Point, Devil's Hopyard, Hammonasset, Wolf Den, Haley Farm, Salmon River, Macedonia Brook, and Gillette Castle facilities. By the end of 2002, nearly 60 composting toilet units will have replaced pit toilets or outhouses. Composting toilets use no water, treat human wastes onsite, and do not pollute the groundwater.

Electric pick-up trucks are located at Southford Falls, Penwood Forest, Hopeville Pond, Rocky Neck, Hammonasset and Mashamoquet.

Environmentally preferable cleaning products are also being purchased for use in state parks. Two examples include water-based paints and stains in place of oil-based products, and squirt bottle window cleaner replaces aerosol spray window cleaners.

Connecticut's Clean School Bus Program Benefits Kids

The Clean School Bus Program is a pilot project in DEP's overall efforts to reduce diesel emissions from school buses and other sources. Using a program that will look at cleaner fuels and new technology to reduce harmful bus emissions, the pilot is expected to reduce risk exposure to children and improve air quality.

Emissions from diesel engines are a growing concern in Connecticut, the region and across the nation. The use of diesel fuel to power buses and trucks has become more pervasive due to the durability of these engines and the low cost of diesel fuel. Diesel emissions are a risk to both human health and the environment because the exhaust contains nitrogen oxides, particulate matter, and 40 other known carcinogens including benzene, 1-3 butadiene, formaldehyde, and acrolein. DEP is making progress toward reducing public exposure to diesel pollution through the Clean School Bus Program as well as other new programs.

The Clean School Bus Project is being implemented throughout the Norwich school system and will include improvements to all of the school buses used by the Norwich school system. Forty-two buses will now use emission control equipment (diesel oxidation catalyst and/or particulate filters) and ultra low sulfur diesel fuel to reduce tailpipe emissions. These changes are expected to result in a reduction of up to 90% of particulate matter, and approximately a 70% reduction in hydrocarbon and carbon monoxide emissions. This project will act as a model for other communities to follow to reduce pollution from school buses that transport children daily.

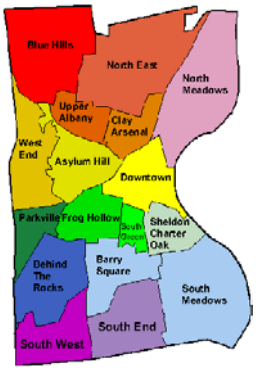
In addition to the Clean School Bus pilot, Connecticut now has an anti-idling law (Public Act 02-56) which took effect October 1, 2002. The law limits idling of school buses to 3 minutes except in certain situations including when outdoor temperature is below 20 degrees Fahrenheit, when it is necessary to operate heating, cooling or auxiliary equipment, to bring to proper operating temperature, when motionless because of traffic, or when being repaired. Local law enforcement personnel can fine violators $100 to $500.

DEP has an anti-idling agreement with the Connecticut School Transportation Association to eliminate unnecessary school bus idling. This agreement states that drivers will shut off buses immediately on reaching their locations; buses will not idle while waiting for passengers. During morning start-up, buses will idle no longer than necessary to bring them to proper operating temperature and defrost all windows.

Other sources of diesel emissions, like construction sites**,** are also being targeted by DEP for reductions. The contractor working on the Quinnipiac River Bridge expansion near the New Haven area is required to retrofit diesel powered construction equipment with an EPA approved diesel oxidation catalyst or use a CARB approved fuel additive. Either of these emission control strategies will reduce particulate emissions by as much as 50%.

Growing Smarter In Hartford

Hartford, CT, is a historic New England city that has faced a declining population over the last fifty years. As many residents moved out to the suburbs, they left behind a population that is largely low-income and minority. In addition, many of the manufacturers and other businesses that once made Hartford highly prosperous left the city for other locations. Many of these businesses left behind contaminated properties and urban blight, the challenges that many New England cities face.



One way that the DEP is addressing these issues in Hartford, often a result of sprawl out into more suburban communities, is through the Hartford Neighborhood Environmental Project (HNEP). A grant from the US EPA provides funding that is enabling HNEP to partner with Hartford 2000, a coalition of neighborhood revitalization zones, and develop model training programs in smart growth for urban environmental justice communities.

Smart growth is careful urban planning that includes the following elements: transit-oriented development in urban areas, urban infill design through vacant lot reclamation, environmentally sensitive mixed-use zoning, energy conservation, and green building. A successful training session was held in May 2002 that utilized a planning and visioning approach called the Visual Preference Survey (VPS). The VPS is a series of visuals (pictures or photographs) of development options that are then rated according to the viewers' preferences. It is a highly effective teaching tool and very useful for visualizing desired changes. The VPS was previously used by the Capitol Region Council of Governments (CRCOG), and the resulting data were made available for the Hartford training.

Those attending the smart growth training session in Hartford indicated a strong commitment to changing development in Hartford's neighborhoods. A number of recommended actions for smarter development were suggested, focusing on parking, greening neighborhoods, zoning, creating pedestrian, biking and transit-friendly streets, and filling-in the vacant spaces in streetscapes. DEP will continue to work with Hartford residents and community leaders providing them with technical assistance so that recommendations can be adopted and implemented throughout the City's neighborhoods.